Case report

Dystrophic calcinosis cutis in autosomal recessive dystrophic epidermolysis bullosa

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SUMMARY

A 6-year-old girl presented with a history of blistering and scarring in trauma-prone areas. On examination, calcium deposits were seen on bilateral palms and soles within her non-healing wounds. Clinical, genetic and radiological evaluation confirmed the diagnosis of autosomal recessive dystrophic epidermolysis bullosa with dystrophic calcification. The patient was started on topical 10% sodium thiosulfate for her calcinosis cutis. Identification and management of dystrophic calcification are important as it impairs wound healing.

BACKGROUND

Epidermolysis bullosa is a group of inherited blistering disorder characterised by mutation in the components of the basement membrane zone resulting in blistering over trauma-prone areas, which may heal with scarring and milia formation in its dystrophic variant.¹ We present a case of autosomal recessive dystrophic epidermolysis bullosa with dystrophic calcification within non-healing wounds.

CASE PRESENTATION

A 6-year-old girl presented with a history of both clear fluid-filled and haemorrhagic blisters predominantly over trauma-prone areas associated with scarring since birth. She also complained of occasional oral erosions. There were no systemic complaints. No other family member was affected with the similar illness. There was a history of consanguinity in parents. On clinical examination, scarring and milia were noted on trauma-prone areas, including both hands and feet. There were pseudosyndactyly and mild flexion deformity of bilateral hands, associated with nail dystrophy. On close examination, multiple, discrete, chalky white deposits of size 3–5 mm were seen on bilateral palms and soles limited to the areas of scarring (figure 1A,B). Oral mucosa and scalp were within normal limits. No active blisters were seen at the time of presentation. A clinical diagnosis of autosomal recessive dystrophic epidermolysis bullosa was considered based on the clinical diagnostic matrix.¹

INVESTIGATIONS

Genetic testing showed homozygous nonsense variation in exon 34 of the COL7A1 gene (chr3:48622196G>A; Depth:72x) which resulted in a stop codon and premature

truncation of the protein at codon 1340 (p.Arg1340Ter; ENST00000328333.8), confirming the diagnosis of autosomal recessive dystrophic epidermolysis bullosa (MedGenome Labs, Bangalore, India). The calcification over the palms and soles was confirmed on radiological evaluation (figure 1C,D). Serum calcium and phosphate levels were within normal range.

DIFFERENTIAL DIAGNOSIS

Correlating the clinical features with genetic analysis and imaging findings, a diagnosis of autosomal recessive dystrophic epidermolysis bullosa with dystrophic calcification was made.

TREATMENT

Counselling regarding the disease with genetic counselling for the parents were done, and supportive management and proper wound care were advised for her dystrophic epidermolysis bullosa. For her dystrophic calcification, the patient was advised topical application of 10% sodium thiosulfate two times per day.

OUTCOME AND FOLLOW-UP

At 3 months of follow-up, there was no new development of chalky deposits over the wound, with mild reduction in the size of the existing deposits. Wound healing also improved with a gradual re-epithelisation.

DISCUSSION

Epidermolysis bullosa is a genetic blistering disorder. Generalised recessive dystrophic epidermolysis bullosa resulting from mutation in collagen 7 leads to extensive blistering and erosions starting at birth which resolves with milia and scarring.² Calcinosis developing at a site of local tissue damage in the presence of normal serum calcium level is known as dystrophic calcification. This process is considered as a consequence of cell death, abnormal calcium homeostasis, excessive influx of intracellular calcium and an alteration of local pH resulting in the precipitation of calcium.³ The presence of dystrophic calcification has shown to stimulate a positive feedback loop of inflammation resulting in the progression of an underlying disease.⁴ They are usually seen as blackish deposits at the base of the wound, but they can also be embedded within the fibrous tissue of the wound bed forming chalky white deposits, as seen in our case.

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Figure 1 Clinical examination revealed multiple, chalky white, discrete deposits (black arrows) located on the areas of scarring on the soles (A) and the palm (B). Calcium depositions (black arrows) were confirmed on radiological evaluation of the soles (C) and the palm (D).

Dystrophic calcification is a common finding in connective tissue diseases as systemic sclerosis and dermatomyositis.³ Other common causes are disorder of collagen and elastin as pseudoxanthoma elasticum and Ehlers-Danlos syndrome, and benign appendageal tumours as pilomatricoma and trichilemmal cyst. Superficial fascial calcification has been noted on pelvic radiography in a patient with epidermolysis bullosa by Panicek *et al.*⁵ Calcification has been reported in other acquired subepidermal blistering disorders associated with scarring and milia,⁶ although calcification in a non-healing wound of inherited epidermolysis bullosa is rarely reported in the literature.

The presence of dystrophic calcification has shown to impair the healing of a wound and perpetuate the chronic inflammation.⁷ Thus, its recognition and early management are important in children with recessive dystrophic epidermolysis bullosa. Hydrogel dressings are proposed to be effective in this condition due to their autolytic debridement action, although well-planned studies documenting their efficacy are lacking. Other treatment options are warfarin, bisphosphonates, diltiazem, aluminium hydroxide, intralesional corticosteroid and surgical excision.⁸ There are reports of successful treatment of calcinosis

cutis with 10% topical sodium thiosulfate.⁹ Our patient showed mild improvement after 3 months of this therapy.

Learning points

- ▶ Dystrophic calcification is a rare complication in non-healing wounds of inherited autosomal recessive dystrophic epidermolysis bullosa.
- ▶ The presence of dystrophic calcification impairs wound healing and may make it prone to other complications such as infection and scarring.
- ▶ Early recognition and treatment of this complication helps in wound healing for these patients.

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